Consumer Behavior in the Smartphone Segment Market: An Analysis of College Students

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***Abstract*— The purpose of this study was to determine segment groups among college students. To achieve this goal, exploratory factor analysis and hierarchy cluster analysis were used. This study used survey data gathered from 400 university students. Results showed that college students could be divided into two different groups based on lifestyle measurement. The two groups were self achievement and peer influence. In addition, results showed both theoretical and practical implications.**

***Keywords*— consumer behavior; segment; smartphone; lifestyle; college student**

1. Introduction

Nowadays, smartphones have become essential tools for everyone. According to a 2011 survey by Microsoft, Americans spend an average of 2.7 hours per day engaged in social networking using sites like Facebook, Twitter, and others [12]. Ref. [1] found that a majority of college students like to connect with their friends anytime via smartphone. Based on Ref. [10], the purchasing behaviors of college students are easily affected by promotion and environment. Ref. [9] did a survey of 18 to 26-year-olds, and results showed that the factors that influenced impulsive purchasing intentions included willingness to purchase, brand, layout of goods, and promotion. Therefore, this study aimed to explore the buying behaviors of college students.

Many scholars have tried to build a framework of consumer behaviors. The common models are Nicosia model [4], Howard-Sheth model [6], and EKB model [5] [7]. The EKB model has been adopted by most researchers because of its comprehensive structure [3]. Therefore, this study uses the EKB model as its primary structure. Consumer behavior variables include information search, brands, motives, and brand loyalty. In addition, the 4Ps of marketing (product, price, place and promotion)[11] are adapted to decision making.

Previous studies have shown the strength of segment markets [8] [14] [15]. And, AIO measurement (Activity, Interests, and Opinion Inventory) is a tool often used to build market segments [2] [13]. Hence, AIO measurement is used in this study.

2. Methods

This study was aimed at college students, so a university in Taiwan was selected for the participant pool. Since a stratified random sampling method was used, finding an appropriate sample size for this population was the first step. In 2013, 10,675 students were enrolled in this university; this provides a confidence level of 95% and maximum error d=0.05. Using the following equation, $n = \frac{N}{N(\frac{2d}{Z_{\alpha/2}})^2+1}$, the minimum sample size was determined to be 371. Meanwhile, the controlled variables were gender and college. Data was collected in a university between December 1, 2014 and December 31, 2014. A total of 420 questionnaires were distributed to students in the university, and 400 (95.2%) were completed.

3. Findings

Since gender and college were control variables, the descriptive statistics were grade and monthly disposable income. Among the respondents, 39.35% (n=157) were freshmen, 3.5% (n=14) were sophomores, 42.8% (n=171) were juniors, and 14.5% (n=58) were senior students. Regarding monthly disposable income, 40% of respondents (n=160) spent under 5,000 NTD, 43.0% (n=172) spent between 5,001 and 10,000 NTD, 13.0% (n=52) spent between 10,001 and 15,000 NTD, and 4.0% (n=16) of respondents spend over 15,000 NTD (Table 1).

For the consumers' preference, a majority of respondents obtained information from the Internet (64.6%), television (62.8%), and friends and relatives (51.8%). Other information sources included direct mail advertising (23.4%), newspaper and magazines (21.6%), and others (1.5%). Considering the brand of smartphone, 25.3% (n=101) of respondents used an HTC, and 25.3% of respondents used an Apple, as well. Other brands included Samsung (18.3%), Sony (14.5%), and Asus (6.8%). However, a majority of respondents (55.8%) would choose an Apple when replacing their smartphone (Table 2).

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Table1. Demographic characteristics of the sample

Variable	Categories	Frequency	Percent (%)
Year	Freshman	157	39.3%
	Sophomores	14	3.5%
	Juniors	171	42.8%
	Senior	58	14.5%
Monthly Disposable Income (NTD)	Less than 5,000	160	40.0%
	$5001 to $10,000	172	43.0%
	$10,001 to $15,000	52	13.0%
	$15,001 to $20,000	12	3.0%
	$20,001 or more	4	1.0%

Table2. Consumers' preference of the sample

Variable	Categories	Frequency	Percent (%)
Information Receiving*	Internet	257	64.6%
	Television	250	62.8%
	Friends and relatives	206	51.8%
	Direct mail advertising	93	23.4%
	Newspaper and Magazines	86	21.6%
	Others	6	1.5%
Brand (present using)	HTC	101	25.3%
	Apple	101	25.3%
	Samsung	73	18.3%
	Sony	58	14.5%
	Asus	27	6.8%
	MI(Xiaomi)	14	3.5%
	LG	7	1.8%
	Infocus	2	0.5%
	Other	17	4.3%
Brand (replacing)	Apple	223	55.8%
	HTC	67	16.8%
	Sony	45	11.3%
	Samsung	39	9.8%
	Asus	10	2.5%
	MI(Xiaomi)	9	2.3%
	LG	2	0.5%
	Other	5	1.3%

*more than one answer

Since the purpose of this study was to identify segments of college students, an exploratory factor analysis (EFA) was used. The first step revealed that three variables had adequate reliability: consumer behaviors (Cronbach's α = 0.84), decision-making (Cronbach's α = 0.73), and AIO (Cronbach's α = 0.86). According to Kaiser and Rice (1974), the value of KMO should be greater than 0.8; the results of this study was 0.82, which demonstrated that the EFA was appropriate. Another index was the Barlett Test, the value of which was 3323.33, with a p-value of 0.00. Both indices showed that the EFA was appropriate.

This study used an EFA with an orthogonal rotation of varimax. An exploratory principal component factor analysis was performed to assess the validity of the lifestyle constructs and determine the potential groupings of lifestyle groups.

Table3. Factor analysis results for lifestyle based on AIO measurement

Items	F1	F2	F3	F4
Factor 1: Social networking				
Participating in student associations could teach me new things.	0.74			
I usually participate in activities held by student associations.	0.74			
It is important to develop a hobby.	0.71			
I would spend lots of time on my hobby.	0.68			
I would spend lots of time on leisure activities.	0.52			
Factor2: Self-development				
I like a planned life.		0.78		
I appreciate people who have achievements from work.		0.75		
It is important to pursue self-development.		0.69		
I do not like life without goals.		0.64		
Factor3: Current events care				
I usually pay attention to business news.			0.82	
I usually read the same cellphone magazine.			0.73	
I usually pay attention to education news.			0.67	
I care about the business development.			0.65	
Factor4: Fashion seeking				
I like to learn the trend of fashion.				0.83
I like novelty products.				0.81
Between fashion and practical items, I prefer fashion.				0.76
Eigenvalues	4.02	1.79	1.72	1.58
Percentage Variance explained	25.12	11.19	10.75	9.87

Initial analysis of the 36 AIO items revealed that 20 items had either low communality value (less than 0.5) or low factor loading (less than 0.5). Factor analysis was subsequently performed on the remaining 15 AIO items and Results of the varimax rotated analysis demonstrated the presence of four factors with eigenvalues greater than one. The results of this analysis were summarized in Table 3.

The computed EFA results indicated that Factor 1 (F1) contained five items. The factor loadings for this factor ranged from 0.52 to 0.74, with an eigenvalue of 4.02, and accounted for 25.12% of the total variance. Based on the five items, F1 was labeled "social networking." Factor 2 (F2) was represented by four items relating to respondents' attitudes. These four items had factor loadings between 0.64 and 0.78, with eigenvalues of 1.79, and accounted for 11.19% of the total variance. Based on these four items, F2 was labeled "self-development."

Factor 3 (F3) was represented by four items relating to respondents' opinions. These four items had factor loadings between 0.65 and 0.82, with eigenvalues of 1.72, and accounted for 10.75% of the total variance. Based on these items, F3 was labeled "current events care." Factor 4 (F4) was represented by three items relating to interests. These three items had factor loadings between 0.76 and 0.83, with eigenvalues of 1.58, and accounted for 9.87% of the total variance. Based on these items, F4 was labeled "fashion seeking."

According to the factor analysis results, there were four constructs in this study. Then, a cluster analysis was used to determine the segment groups. This study adopted hierarchical cluster analysis based on similar lifestyles, and the results showed in Table 4. Two clusters were labeled "self achievement" and "peer influence."

Table 4. Results of hierarchical cluster analysis

	F1	F2	F3	F 4	Labeled
1	-0.2733	0.0231	0.2886	-0.0035	Self achievement
2	0.7777	-0.0066	-0.8213	0.0099	Peer influence

4. Discussion

According to the results, college students can be divided into two groups based on their lifestyle choices. For the "self-achievement" group, the smartphone company should focus on advertising via the Internet and newspapers. In addition, they should place an emphasis on promoting the functions of the smartphone rather than its design.

The students in the "peer influence" group usually got their information from relatives and friends, and this group of college students was more likely to choose novelty products rather than products advertised for their functions. Therefore, the smartphone company should promote their product to this group via social networking (e.g., Facebook, Twitter, etc.)

These two groups demonstrated different consumer behaviors because of their attitudes, and their Internet use and opinions were in contrast. Hence, selecting products to promote to specific market segments is important for a company's success.

5. Application of Results

Results revealed two groups based on the different lifestyle, which meant that those consumers had different buying patterns. Therefore, these results could give industries vital information to be used when they promote electric products to college students.

6. Conclusion

In conclusion, based on the AIO measurement, this study identified two segments among college students. According to the EFA results, two clusters were divided; one cluster was labelled as "self achievement," and the other was labelled as "peer influence."

Within the "self achievement" cluster, college students were more likely to pay attention to their self-development (such as life plans, goals, etc.) and current issues. Thus, those consumers would spend more effort on information-gathering and research because they prefer a planned life or goal. Results showed that in this cluster, most of the college students purchased an Apple as a smartphone brand. In addition, most of the consumers obtained smartphone information from the Internet.

Within the "peer influence" cluster, college students were more likely to be concerned about the function of social networking and fashion seeking. This kind of consumer was likely to follow friends' suggestions or advertising promotions when choosing a smartphone. Hence, results showed that most of the respondents obtained information from TV advertisements, and that most of these college students purchased an HTC as a smartphone brand.

After the two clusters were identified, an independent T-test was adopted to examine the consumer behaviors and decision-making processes. Results showed that there were significant difference between these two groups.

References

[1] Baron, N. S., & Segerstad, Y. H. (2010). Cross-Cultural Patterns in Mobile-phone Use: Public Space and Reachability in Sweden, the USA and Japan. New Media & Society, 12(1), 13-34.

[2] Darden, W. R., & Reynolds, F. D. (1974). Backward Profiling of Male Innovators. Journal of Marketing Research, 79-85.

[3] Darley, W. K., Blankson, C., & Luethge, D. J. (2010). Toward an Integrated Framework for Online Consumer Behavior and Decision Making Process: A Review. Psychology & Marketing, 27(2), 94-116.

[4] Demby, E. (1973). Psychographics and Form Where It Comes Lifestyle and Psychographics. Chicago: AMA.

[5] Engel, J. F., Blackwell, R. D., & Miniard, P. W. (1995). Consumer Behavior (8th ed.). New York: Dryder.

[6] Howard, J. A., & Sheth, J. N. (1969). The Theory of Buyer Behavior. (Vol. 14). New York: Wiley. Kaiser, H.F & Rice, J. (1974). Little Jiffy, Mark IV. Educational and Psychological Measurement.

[7] Kollat, D. T., Engel, J. F., & Blackwell, R. D. (1970). Current Problems in Consumer Behavior Research. Journal of Marketing Research, 327-332.
[8] Kotler, P., & Keller, K. L. (2006). Marketing Management: Prentice Hall.
[9] Liang, C.-C., Wang, Y.-T., Chu, Y.-C., Lin, S.-H., & Chen, Y.-C. (2015). Impulsive Buying Behavior of Otaku Undergraduate Students. Xing Xiao Ping Lun, 12(2), 139-160.
[10] Luo, X. (2005). How does shopping with others influence impuslive purchasing? Journal of Consumer Psychology, 15(4), 288-294.
[11] McCarthy, E. J. (1960). Basic Marketing: A Managerial Approach. Homewood, IL: Richard D. Irwin. Inc.
[12] Microsoft (2011). Mobile usage and socialization by the numbers., from http://www.intomobile.com/2011/03/24/infographic/
[13] Plummer, J. T. (1974). The Concept and Application of Life Segmentation. The Journal of Marketing, 33-37.
[14] Wind,Y. (1978). Issues and Advances in Segmentation Research. Journal of Marketing Research, 15(3), 317-337.
[15] Yankelovich, D., & Meer, D. (2006). Rediscovering Market Segmentation. Harvard Business Review, 84(2), 122.